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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/822,891

Applicant(s)

CANDELORE ET AL.

Examiner

ALFONSO CASTRO

Art Unit

2423

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/22)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date 6/11/2009; 9/10/2009; 11/20/2009; 12/24/2009

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 9/8/2009 have been fully considered with respect to the teachings of Hoarty have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly found prior art references and in view of the amended claims

Information Disclosure Statement

2. The information disclosure statements (IDS) submitted on 6/11/2009, 9/10/2009, 11/20/2009, and 12/24/2009 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner.

Status of Claims

3. Claims 1-38 are pending.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 1 recites the limitation "substituting the one or more macroblocks having a second PID for the one or more macroblocks having the first PID" however claim 1 only recites receiving a plurality of PIDs associated with original content which does not provide antecedence for receiving a second PID and associated content. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of

Art Unit: 2423

35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flickinger et al. PG Pub 2005/0210502 (hereinafter "Flickinger") in further view of Florencio et al., US 6,621,866 (hereafter Florencio).

9. Regarding claim 1, "a method of content substitution" reads on Flickinger (page 3, [0041] line 1-22 – invention used to insert ads into television programming or replace existing data in data streams where [0049] line 1-7 teaches ads are content);

"receiving data representing content" reads on Flickinger (0028 lines 1-10; 0030 lines 11-14; and 0031 lines 1-5; and 0045 – transmitting video content);

Regarding "the data having a plurality of packet identifiers (PIDs) where each PID is associated with one or more macroblocks of original content", Flickinger teaches ([0077] line 3-13 – a separate PID is created for each data stream and for each ad program stream, as such, transmitting plurality of data streams and ads corresponds to a plurality of PIDs). Whereas Flickinger reference does not specifically reference the phrase "original content" when referring to PIDs, a review of Flickinger identifies a system which can be used in a digital television service delivery network with video or multimedia stream such as MPEG signals (Abstract; page 3 [0034]) and teaches the insertion of content directly into a portion of the screen during actual programming or replacing

Art Unit: 2423

existing data in the data stream (page 3 [0041]) and further discloses substituting or splicing content into the programming being delivered or the programming being viewed (page 5 [0066]). Hence, Flickinger teaches use of MPEG signals for insertion, replacing, substituting or splicing content into programming being delivered or viewed, as such, teaches at least two pieces of content, a first content, being delivered or view, and a second content for inserting, replacing, substituting, or splicing which suggests the programming being delivered or viewed is the original content. Furthermore, whereas Flickinger teaches each PID is created for each data stream, Flickinger does not specifically reference "each PID is associated with one or more macroblocks or original content." In an analogous art, Florencio teaches a method for inserting a visual element into an encoded bit stream (Abstract) comprising MPEG data stream comprising video access units and an access unit will be a complete encoded video frame where access units correspond to more than one macroblock (col. 3 lines 42-55). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify a method of Flickinger for insertion of content directly into a portion of the screen during actual programming or replacing existing data in the data stream and receiving a separate PID for each data streams and further incorporating the method taught by Florencio of associating the macroblocks with each content to be presented in order to accomplish substitution of a macroblock with a corresponding macroblock when receiving multiple program streams with separate packet identifiers because the

Art Unit: 2423

aggregation of references results in a combination of prior art elements according to known methods to yield predictable results.

"initiating processing of content having the first PID" reads on Flickinger ([0048] line 3-5, ads are transmitted to the STBs for storage until they are played where each content comprises a unique identifier ([0058]) corresponds to processing content the first PID);

"determining that a substitution criterion has been met to substitute one or more macroblocks of original content, wherein the one or more macroblocks constitute less than an entire video frame of macroblocks," Flickinger teaches ("substitution criterion" corresponds to Flickinger [0042-44] determining if content should be substituted and replacing existing data if desired into the data stream). While Flickinger does not specifically use the same terminology as "substitute one or more macroblocks of original content", Flickinger teaches inserting ads or substituting only a portion of the screen (page 3 [0041]) when viewed in light Florencio as discussed above. Substituting one or more macroblocks of original content is disclosed by Florencio (Fig. 2 discloses one or more macroblocks of content constitute less than an entire video frame of macroblocks; Abstract & Col. 3, lines 42-67 to col. 4 lines 1-10—teaching inserting visual element into an encoded bit stream by replacing macroblock content). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify a method for receiving data streams comprising PIDs by associating PIDs with corresponding macroblocks as taught by the combination of Flickinger and Florencio, as discussed above, by incorporating a method for replacing

Art Unit: 2423

content constituting less than an entire video frame as taught by Florencio in order to accomplish substitution of a macroblock with a corresponding macroblock when receiving multiple program streams and substituting existing data into the data stream.

Regarding "substituting the one or more macroblocks having a second PID for the one or more macroblocks having a first PID", Flickinger teaches the system inserts ads directly into a portion of the screen during the actual programming (see discussion above for PID associated with one or more macroblocks of original content, hence, the actual programming corresponds to applicant's macroblock having the first PID"). While Flickinger does not specifically reference the phrase "substituting the one or more macroblocks...for one or more macroblocks...", Flickinger suggests the display area is broken up into macroblocks to accomplish insertion when viewed in light of MPEG transmission as disclosed by Florencio, where Florencio teaches (Fig. 2 disclosing one or more macroblocks of content constitute less than an entire video frame of macroblocks; Abstract & Col. 3, lines 42-67 to col. 4 lines 1-10—teaching inserting visual element into an encoded bit stream by replacing macroblock content). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify substituting a content in a data stream represented by separate PIDs by associating the original, or first data stream or program stream, with a first and second macroblock of content for each data stream or program stream as taught by Florencio in order to

Art Unit: 2423

accomplish substitution of a macroblock with a corresponding macroblock when receiving multiple program streams with separate packet identifiers.

“processing the substituted content” reads on Flickinger (0093 line 13-15 -
- resulting program stream with the substituted content is sent to the display device).

10. As to Claim 2, Flickinger et al. teaches “carried out in a decoder forming a part of a television Set-top box” ([0035], line 12-16 -- integrated component of Set-top box decodes and encodes data and also inserts ads into the data stream). Also see Figures 5,6,9 and [0011, 0013, 0077, 0098].

11. As to Claim 3, Flickinger et al. teaches content substitution as discussed in claim 1 is “carried out in a hardware state machine” (Page 3, [0034], line 9-16 – finite state machine understood to correspond to a hardware state machine).

12. As to Claim 4, Flickinger et al. teaches a method of content substitution is “carried out in a programmed processor” ([0034], line 9-16 —teaching integrated components of Set-top box for inserting ads into data stream comprise processors [0034], line 9-16, [0035], line 12-16; [99] Col. 2, line 11-16 specification teaches circuit to be programmed general purpose processors).

13. Regarding claim 5, “the substitution criterion is met as a result of receipt of a flag”, Flickinger solves the problem of the need to use a “flag” as disclosed by applicant for automatically detecting a location where a substitution of content is

Art Unit: 2423

to start and end (Flickinger--0041, line 17-19—teaching avails) and additionally teaches: 1) scheduler 912 that receives instructions on when ad should be played or substituted ([0094], line 1-10) and 2). "management of ads which are inserted into a portion of the screen during the actual programming" (page 2, [0041]) which therefore teaches that the actual programming corresponds to applicant's "main content" and the ads inserted into the actual programming is the "substitution content data" because the ads inserted into the display replace/or substitute the actual programming.

14. As to Claim 6, Flickinger et al. teaches "the substitution criterion is met as a result of an operator input" Flickinger teaches (0097, lines 1-9 updating or switching among multiple ads is determined by viewer selections input by user via remote control operation).

15. As to Claim 7, Flickinger et al. teaches "processing comprises playing the content" (0048 lines 3-5 content corresponds to ads are stored until they are played; 0093 line 13-15 – playing the content is part of processing steps where the resulting program stream with substituted ad is sent to television or other display device).

16. As to Claim 8, Flickinger et al. teaches "the substituting comprises using private signaling to select the macroblock of content with the second PID and discarding the macroblock of content with the first PID (0077 lines 1-12 content having PID; (0093, line 7-13 – the ad to be inserted is queued by a digital que

tone transmitted in the MPTS and used to substitute the original ad). Also see 0074 and 0091 lines 1-7.

17. As to Claim 9, “wherein the substituting comprises using private signaling to select the macroblock of content on the second PID while receiving the macroblock with the first PID” reads on Flickinger (claim 8 discusses use of private signaling to select the macroblock of content and Flickinger further teaches main program being viewed while the designated replacement ads are received [0045] lines 3-6—and where each data content has a PID [0077] lines 1-12).

18. As to Claim 10, Flickinger et al. teaches “substituting is initiated and terminated by private signaling forming part of an adaptation layer of packets in a data stream” ([0093] line 1-15 —data stream carries digital cue tone used for identifying where the substituted ad is to be placed in the data stream corresponds to the private signaling used to indicate when the substitution is to be initiated and terminated. Flickinger et al. contains an enabled disclosure for signaling carried as part of the transport stream in an adaptation layer as shown in [0077] lines 1-18 and [0093] lines 1-16 and can be carried in an adaptation field in a transport stream packet as known the MPEG standard. Flickinger et al. teaches this limitation for private signaling carried as part of an adaptation layer in a transport stream packet in a data stream.

19. As to Claim 11, Flickinger et al. teaches "adaptation layer is in a packet with the second PID" ([0093], line 1-15 – programming stream in form of DVB transport stream or multiple program transport stream and is understood to contain signaling tables and adaptation fields which may be contained in either one of the transport streams of the MPTS identifying the packets).

20. As to Claim 12, Flickinger et al. teaches "adaptation layer is in a packet with the first PID" ([0093], line 1-15 – programming stream in form of DVB transport stream or multiple program transport stream and is understood to contain signaling tables and adaptation fields which may be contained in either one of the transport streams of the MPTS identifying the packets).

21. As to Claim 13, Flickinger et al. teaches "adaptation layer is in a packet that is neither the second nor the first PID" ([0093], line 1-15 – multiple program transport stream which may contain multiple PIDs and understood that an adaptation layer may be may be indicated in any of the PIDs where multiple is understood to mean more than two (i.e. three and a third PID would not be the second nor the first)).

22. As to Claim 14, Flickinger et al. teaches "a computer readable medium storing instructions which, when executed on a programmed processor, carry out the content substitution method according to Claim 1" ([0099], Col. 2, line 4-18, processing steps correspond to software or hardware encompassing processors,

Art Unit: 2423

computers, CPUs and programmed general purpose processors to include memory).

23. Claims 15-22, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flickinger et al. PG Pub 2005/0210502 (hereinafter "Flickinger"), Florencio et al., US 6,621,866 (hereafter Florencio), in further view of Bryant et al., US 5,652,615 (hereafter Bryant).

24. Regarding claim 15, "a method of content substitution" reads on Flickinger (page 3, [0041] line 1-22 – invention used to insert ads into television programming or replace existing data into any other data streams where [0049] line 1-7 teaches ads are content);

"receiving data representing content" reads on Flickinger (page 4, [0049], line 7-10 – content corresponds to ads and metadata about the ads are delivered in programming stream where [0049] line 1-7 teaches storing ads are content);

Regarding "the data having a plurality of packet identifiers (PIDs) associated with one or more macroblocks of original content and one or more macroblocks of substitution content", Flickinger teaches ([0077] line 3-13 – a separate PID is created for each data stream and for each ad program stream, as such, transmitting plurality of data streams and ads corresponds to a plurality of PIDs). Whereas Flickinger reference does not specifically reference the phrase "original content" and "substitution content" when referring to PIDs, a review of Flickinger identifies a system which can be used in a digital television service

Art Unit: 2423

delivery network with content such as video or multimedia stream such as MPEG signals (Abstract; page 3 [0034]). Flickinger further teaches the insertion of content directly into a portion of the screen during actual programming or replacing existing data in the data stream (page 3 [0041]) and further discloses substituting or splicing content into the programming being delivered or the programming being viewed (page 5 [0066]). Hence, Flickinger teaches use of MPEG signals for insertion, replacing, substituting or splicing content into programming being delivered or viewed, as such, teaches at least two pieces of content, a first content (i.e. original content), being delivered or view, and a second content (i.e. substitution content) for inserting, replacing, substituting, or splicing which suggests the programming being delivered or viewed is the original content. Furthermore, whereas Flickinger teaches each PID is created for each *data stream*, Flickinger does not specifically reference "packet identifiers (PIDs) associated with one or more macroblocks or original content and one or more macroblocks of substitution content." In an analogous art, Florencio teaches a method for inserting a visual element into an *encoded bit stream* (Abstract) comprising MPEG data stream comprising video access units and an access unit will be a complete encoded video frame where access units correspond to more than one macroblocks (Fig. 2 and col. 3 lines 42-55). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify a method of Flickinger for insertion of content directly into a portion of the screen during actual programming or replacing existing data in the data stream and receiving a separate PID for each

Art Unit: 2423

data streams and further incorporating the method taught by Florencio of associating the macroblocks with each content to be presented in order to accomplish substitution of a macroblock with a corresponding macroblock when receiving multiple program streams with separate packet identifiers because the aggregation of references results in a combination of prior art elements according to known methods to yield predictable results.

"where the one or more macroblocks of substitution content constitutes less than an entire video frame of macroblocks" Flickinger teaches inserting ads or substituting only a portion of the screen (page 3 [0041]) when viewed in light Florencio as discussed above. Whereas Flickinger does not use the same terminology for "less than an entire video frame of macroblocks," Florencio teaches substituting one or more macroblocks of original content is disclosed by Florencio (Fig. 2 discloses one or more macroblocks of content constitute less than an entire video frame of macroblocks; Abstract & Col. 3, lines 42-67 to col. 4 lines 1-10—teaching inserting visual element into an encoded bit stream by replacing macroblock content). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify a method for receiving data streams comprising PIDs by associating PIDs with corresponding macroblocks as taught by the combination of Flickinger and Florencio, as discussed above, by incorporating a method for replacing content constituting less than an entire video frame as taught by Florencio in order to accomplish substitution of a macroblock with a corresponding macroblock when receiving multiple program streams and substituting existing data into the data stream.

"placing content having a primary PID into a data stream" (Flickinger [0042], line 1-11, main programming is part of normal stream of information);

Regarding "receiving an initiation flag indicating initiation of a PID mapping operation; mapping content having a secondary PID to a primary PID and placing the mapped content into the data stream; receiving a termination flag indicating termination of the PID mapping operation; and continuing to place content having a primary PID into the data stream", the phrase "PID mapping operation" is described by applicant's specification (page 14, lines 7-10[0031], line 13-17). The application is allowed to be his own lexicographer and the phrase "'PID mapping operation" is interpreted by examiner as indicating the main content from substitutable content. Flickinger teaches ([0041] lines 1-6—ads are inserted into programming or inserting any data into any other data stream; [0041] line 17-19--automatically detecting a location where a substitution of content is to start and end; [0094], line 1-10--scheduler 912 that receives instructions on when ad should be played or substituted; initiation flag as claimed by applicant corresponds to designating an indicator for automatically detecting the location of where a substitution of content is to start and end (i.e. corresponds to receiving a termination flag indicating termination of the substitution process). While Flickinger does not specifically reference the term "PID mapping" for substituting one data stream for another, in an analogous art, Bryant teaches that each program is assigned a packet identifier of the elementary streams (col. 5 lines 65-67 to col. 6 lines 1-27) and further teaches that several methods can be used to mix, e.g. insert and select, program segments and to compose a program as it

Art Unit: 2423

progresses downstream over the broadcast network which may require MPEG splicing (as taught by Flickinger) (Bryant col. 7 lines 28-54) and also recognizes that when substituting content, a modified program map table (comprising PID information) is inserted in the program stream to indicate that a particular program is to include a different set of elementary stream packets (col. 6 lines 55-67 to col. 8 lines 1-59). Therefore, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the teachings of Flickinger to designate a means for indicating the beginning and end of the substitution of content by using an indicator or "flag" for identifying the location of where substituted data is to be inserted/overlayed in the programming or original data stream by incorporating a method of mapping PIDs as taught by Bryant because the combination of references results in a process that is more desirable and more efficient.

25. As to Claim 16, Flickinger et al. teaches a method of content substitution "carried out in a decoder forming part of a television Set-top box" ([0035], line 12-16 -- integrated component of Set-top box decodes and encodes data and also inserts ads into the data stream).

26. As to Claim 17, Flickinger et al. teaches a method of content substitution comprising the method being "carried out in a hardware state machine" ([0034], line 9-16 -- finite state machine understood to correspond to a hardware state machine).

27. As to Claim 18, Flickinger et al. teaches a method of content substitution comprising method "carried out in a programmed processor" ([0034], line 9-16 — teaching integrated components of Set-top box for inserting ads into data stream comprise processors [0034], line 9-16, [0035], line 12-16; [99] Col. 2, line 11-16 specification teaches circuit to be programmed general purpose processors).

28. Regarding claim 19, "the substitution criterion is met as a result of receipt of a flag", Flickinger solves the problem of the need to use a "flag" as disclosed by applicant for automatically detecting a location where a substitution of content is to start and end (Flickinger—0041, line 17-19—teaching avails) and additionally teaches: 1) scheduler 912 that receives instructions on when ad should be played or substituted ([0094], line 1-10) and 2). "management of ads which are inserted into a portion of the screen during the actual programming" (page 2, [0041]) which therefore teaches that the actual programming corresponds to applicant's "main content" and the ads inserted into the actual programming is the "substitution content data" because the ads inserted into the display replace/or substitute the actual programming.

29. As to Claim 20, Flickinger et al. teaches "substitution criterion is met as a result of an operator input" (0097, lines 1-9 updating or switching among multiple ads is determined by viewer selections).

30. As to Claim 21, Flickinger et al. teaches "substituting comprises using private signaling to select the macroblock of content with the secondary PID and

Art Unit: 2423

discarding the macroblock of content with the primary PID" (0093, line 7-13 – the ad to be inserted is queued by a digital que tone and the original ad is substituted).

31. As to Claim 22, Flickinger et al. teaches "substitution is initiated and terminated by private signaling forming part of an adaptation layer of packets in a data stream" ([0093] line 1-15 --data stream carries digital cue tone used for identifying where the substituted ad is to be placed in the data stream).

32. As to Claim 25, Flickinger et al. teaches "a computer readable medium storing instructions which, when executed on a programmed processor, carry out the content substitution method" ([0099], Col. 2, line 4-18, processing steps correspond to software or hardware encompassing processors, computers, CPUs and programmed general purpose processors to include memory).

33. As to claim 26, "a content substitution encoder" reads on Flickinger (page 3, [0041] line 1-22 – invention used to insert ads into television programming or replace existing data in data streams where [0049] line 1-7 teaches ads are content; (page 5 [0066]--process of inserting content is accomplished by the STB, as such, Flickinger teaches a content substitution encoder);

"means for receiving input data representing at least one macroblock of main content; means for receiving input data representing at least one macroblock of substitution content" Flickinger teaches (Fig. 2 element 202 input port for receiving content and data streams; [0077] line 3-13 – a separate PID is

Art Unit: 2423

created for each data stream; and for each ad program stream, as such, transmitting plurality of data streams and ads corresponds to a plurality of PIDs). While Flickinger does not specifically reference the phrase "data representing at least one macroblock of main content" and "data representing at least one macroblock of substitution content", Flickinger teaches a separate PID is created for each data stream and for each ad program stream, ([0077] line 3-13) and Flickinger teaches inserting ads or substituting only a portion of the screen (page 3 [0041]), as such, Flickinger receives input data representing at least one macroblock of substitution content. In an analogous art, Florencio teaches a method for inserting a visual element into an *encoded bit stream* (or data stream as taught by Flickinger above) (Florencio Abstract) comprising MPEG data stream comprising video access units and an access unit will be a complete encoded video frame where access units correspond to more than one macroblocks (Fig. 2 and col. 3 lines 42-55). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify receiving a plurality of data streams comprising PIDs by receiving data for macroblocks associated with the PIDs as taught by the prior art (MPEG-2 Transmission) and by further receiving a macroblock of the content to be substituted as taught by Florencio in order to accomplish substitution of a macroblock with a corresponding macroblock when receiving multiple program streams with separate packet identifiers.

"where the one or more macroblocks of substitution content constitutes less than an entire video frame of macroblocks" Flickinger teaches inserting ads

Art Unit: 2423

or substituting only a portion of the screen (page 3 [0041]) when viewed in light Florencio as discussed above. Whereas Flickinger does not use the same terminology for "less than an entire video frame of macroblocks," Florencio teaches substituting one or more macroblocks of original content is disclosed by Florencio (Fig. 2 discloses one or more macroblocks of content constitute less than an entire video frame of macroblocks; Abstract & Col. 3, lines 42-67 to col. 4 lines 1-10—teaching inserting visual element into an encoded bit stream by replacing macroblock content). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify a method for receiving data streams comprising PIDs by associating PIDs with corresponding macroblocks as taught by the combination of Flickinger and Florencio, as discussed above, by incorporating a method for replacing content constituting less than an entire video frame as taught by Florencio in order to accomplish substitution of a macroblock with a corresponding macroblock when receiving multiple program streams and substituting existing data into the data stream.

"means for initiating a packet identifier (PID) mapper that assigns a primary PID to the main content and assigns a secondary PID to the substitution content" Flickinger teaches ([0093], line 1-15 – DVB transport stream i.e. MPTS identifies packets with PIDs when transported where one of ordinary skill in the art would draw and inference that each macroblock of content is assigned a PID; ([0077] line 3-13 – a separate PID is created for each data stream and for each ad program stream, as such, using common sense the plurality of data streams and ads would each need to be assigned a corresponding PIDs). Flickinger does

Art Unit: 2423

not specifically reference which content is the main or secondary content but teaches multiple content is received. Furthermore, whereas Flickinger teaches each PID is created for each *data stream*, Flickinger does not specifically reference "packet identifiers (PIDs) associated with one or more macroblocks or original content and one or more macroblocks of substitution content." In an analogous art, Florencio teaches a method for inserting a visual element into an *encoded bit stream* (Abstract) comprising MPEG data stream comprising video access units and an access unit will be a complete encoded video frame where access units correspond to more than one macroblocks (Fig. 2 and col. 3 lines 42-55). While Florencio does not specifically reference the term "primary PID to the main content" and a "secondary PID to the substitution content", in an analogous art, Bryant teaches the missing limitation of Florencio. Bryant teaches that each program is assigned a packet identifier of the elementary streams (col. 5 lines 65-67 to col. 6 lines 1-27) and further teaches that several methods can be used to mix, e.g. insert and select, program segments and to compose a program as it progresses downstream over the broadcast network which may require MPEG splicing (as taught by Flickinger) (Bryant col. 7 lines 28-54) and also recognizes that when substituting content, a modified program map table (comprising PID information) is inserted in the program stream to indicate that a particular program is to include a different set of elementary stream packets (col. 6 lines 55-67 to col. 8 lines 1-59). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify a method for assigning a PID to each data stream by further assigning corresponding

Art Unit: 2423

macroblocks to the main content and substitution content as taught by Florencio and by further associating the original, or first and second data stream or program stream, with a first and second PID, respectively, as Bryant in order to accomplish substitution of a macroblocks from different program data streams when receiving multiple program streams with separate packet identifiers.

"means for initiating a private data generator that generates user private data that identifies the main content by the primary PID and substitution content by the secondary PID; means for assembling the private data, the main content mapped to the primary PID and the substitution content mapped to the secondary PID into a data stream" Bryant teaches (col. 4 lines 10-37— "private data generator that generates user private data" corresponds to a module for decoding which takes user profile information for generating content which includes a "base" and "fill" which is a first and second program segment' base program content corresponds to primary content and the program fill corresponds to secondary content; col. 5 lines 65-67 to col. 6 lines 1-54 & col. 7 lines 19-67 to col. 8 lines 1-59—assigning PID to based and fill content). As such, Bryant teaches the ability to identify primary content and the secondary content, without using the PID. As discussed in Flickinger above, teaches each PID is created for each *data stream* ([0077] line 3-13 – a separate PID is created for each data stream and for each ad program stream, as such, transmitting plurality of data streams and ads corresponds to a plurality of PIDs). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify a method for assigning a PID to each data stream by further

Art Unit: 2423

associating the original, or first and second data stream or program stream, respectively, as taught by Bryant in order to assign each data stream of original or substitution content a PID, in order to accomplish substitution of a macroblocks from different program data streams when receiving multiple program streams with separate packet identifiers.

34. As to Claim 27, Flickinger et al. teaches the content substitution encoder "implemented using a programmed computer" ([0099], Col. 2, line 11-16 -- encoder corresponds to software, hardware, or circuit which encompasses computers or programmed general purpose processors).

35. As to Claim 28, "a decoder, comprising: a receiver receiving data that represents content" Flickinger teaches (Page 9, Col. 2 -- claim 22 processor configured to decode; ([0052], line 1-10; Figure 9, 901 shows MPTS transport stream received with ads and ads metadata representing content; Fig. 2 element 202 input port for receiving content and data streams),

"the data having a plurality of packet identifiers (PIDs) associated with one or more macroblocks of original content and one or more macroblocks of substitution content" Flickinger teaches ([0052], line 1-10; Figure 9, 901 identifies MPTS transport stream with ads and ads metadata which allows one of ordinary skill in the art to draw an inference that MPTS transport streams transmit data comprising macroblocks; [0077] line 3-13 -- a separate PID is created for each data stream; and for each ad program stream, as such, transmitting plurality of data streams and ads corresponds to a plurality of PIDs). While Flickinger does

Art Unit: 2423

not specifically reference the phrase "packet identifiers (PIDs) associated with one or more macroblocks of original content and one or more macroblocks of substitution content," Flickinger teaches a separate PID is created for each data stream and for each ad program stream, ([0077] line 3-13) and Flickinger teaches inserting ads or substituting only a portion of the screen (page 3 [0041]), as such, Flickinger receives input data representing at least one macroblock of substitution content. In an analogous art, Florencio teaches a method for inserting a visual element into an *encoded bit stream* (or data stream as taught by Flickinger above) (Florencio Abstract) comprising MPEG data stream comprising video access units and an access unit will be a complete encoded video frame where access units correspond to more than one macroblocks (Fig. 2 and col. 3 lines 42-55). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify receiving a plurality of data streams comprising PIDs by receiving data for macroblocks associated with the PIDs as taught by the Florencio disclosing receiving a macroblock of the content to be substituted in order to accomplish substitution of a macroblock with a corresponding macroblock when receiving multiple program streams with separate packet identifiers.

"a content decoder configured to play content having the first PID" (Page 9, Col. 2 -- claim 22 set-top processor configured to transmit signals to a television; page 2 [0030]—transmits signals for display; [0077] line 3-13 – a separate PID is created for each data stream, as such, the processor can play content having the received PIDs);

"a controller that determines that a substitution criterion has been met to substitute one or more macroblocks of original content" Flickinger discloses this limitation, Flickinger does not specifically reference the phrase "substitute one or more macroblocks of original content" ([0095], line 1-5-- detection module 910 detects the cue tone to indicate an insertion of an ad is to take place). Flickinger implicitly teaches "substitute one or more macroblocks of original content" where a person skilled in the art would have understood Flickinger's teaching (page 3 [0041]) as inserting ads or substituting only a portion of the PID macroblocks when viewed in light of the prior art of as taught by Florencio above. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify receiver comprising a controller for determining when content should be substituted in order to substitute PIDs by incorporating a method of substituting macroblocks associated with content as taught the prior art and Florencio because the aggregation of references results in an aggregation of prior art elements according to known methods to yield predictable results.

"a PID mapper that maps content having the second PID to the first PID so that the content originally having the second PID is played" Flickinger teaches ([0093], lines 11-15 – an ad insertion module inserts or splices the queued ad according to the cue tone timing and a resulting program stream with the substituted ad is decoded by decoder module and sent to a television or other display device). Whereas Flickinger, teaches that each piece of content is assigned a unique identifier (page 4 [0058]), Flickinger does not specifically

Art Unit: 2423

reference the phrase "PID mapper." In an analogous art, Bryant teaches that each program is assigned a packet identifier of the elementary streams (col. 5 lines 65-67 to col. 6 lines 1-27) and further teaches that several methods can be used to mix, e.g. insert and select, program segments and to compose a program as it progresses downstream over the broadcast network which may require MPEG splicing (as taught by Flickinger) (Bryant col. 7 lines 28-54) and also recognizes that when substituting content, a modified program map table (comprising PID information) is inserted in the program stream to indicate that a particular program is to include a different set of elementary stream packets (col. 6 lines 55-67 to col. 8 lines 1-59). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify receiver comprising a module for replacing an original program comprising a first PID to a second program comprising a second PID as taught by Bryant because the combination of references results in a product that is more desirable and more efficient.

36. As to Claim 29, Flickinger et al. teaches "decoder resides in a television Set-top box" (Page 9, Col. 2 -- claim 22 set-top processor configured to decode).

37. Claims 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flickinger et al. PG Pub 2005/0210502 (hereinafter "Flickinger"), Florencio et al., US 6,621,866 (hereafter Florencio), Bryant et al., US 5,652,615 (hereafter Bryant), in further view of MPEG-2 Transmission (of record).

38. As to Claim 23, Flickinger et al. teaches "wherein the adaptation layer is in a packet with the one of the primary PID and the secondary PID" ([0093], line 1-15 – programming stream in form of DVB transport stream or multiple program transport stream and is understood to contain adaptation fields which may be contained in either one of the transport streams of the MPTS. Flickinger et al. contains an enabled disclosure for signaling carried as part of the transport stream in an adaptation layer as shown in [0077] lines 1-18 and [0093] lines 1-16 and can be carried in an adaptation field in a transport stream packet as shown in "MPEG-2 Transmission" page 8 and 9 regarding transport packet adaptation layer. Flickinger et al. teaches this limitation for an adaptation layer contained in a transport stream packet in a data stream. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify a method of Flickinger for insertion of content directly into a portion of the screen during actual programming or replacing existing data in the data stream and incorporating a method for MPEG transmission as known in the art because the combination of references results in an aggregation of prior art elements according to known methods to yield predictable results.

39. As to Claim 24, Flickinger et al. teaches "wherein the adaptation layer is in a packet that has neither the secondary nor the primary PID" ([0093], line 1-15 – multiple program transport stream which may contain multiple PIDs and understood that an adaptation layer may be indicated in any of the PIDs where multiple is understood to mean more than two (i.e. three and a third PID would not be the second nor the first). Flickinger et al. contains an enabled disclosure for signaling carried as part of the transport stream in an adaptation layer as shown in [0077] lines 1-18 and [0093] lines 1-16 and can be carried in an adaptation field in a transport stream packet as shown in "MPEG-2 Transmission" page 8 and 9 regarding transport packet adaptation layer. Flickinger et al. teaches this limitation for an adaptation layer contained in a transport stream packet in a data stream. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify a method of Flickinger for insertion of content directly into a portion of the screen during actual programming or replacing existing data in the data stream and incorporating a method for MPEG transmission as known in the art because the combination of references results in an aggregation of prior art elements according to known methods to yield predictable results.

Art Unit: 2423

40. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Flickinger et al. PG Pub 2005/0210502 (hereinafter "Flickinger"), Florencio et al., US 6,621,866 (hereafter Florencio), Boyce et al., US 5,805,762 (hereafter Boyce), in further view of Bordes et al., PG Pub 2001/0024471 (hereafter Bordes).

41. Regarding "a television set-top box decoder, comprising: a receiver receiving data that represents content" ([0035], line 12-16 -- integrated component of Set-top box decodes and encodes data and also inserts ads into the data stream; page 3, [0041] line 1-22 -- invention used to insert ads into television programming or replace existing data in data streams where [0049] line 1-7 teaches ads are content). Regarding "the data having a plurality of packet identifiers (PIDs) associated with one or more macroblocks of original content and one or more macroblocks of substitution content", Flickinger teaches ([0077] line 3-13 -- a separate PID is created for each data stream and for each ad program stream, as such, transmitting plurality of data streams and ads corresponds to a plurality of PIDs). Whereas Flickinger reference does not specifically reference the phrase "original content" and "substitution content" when referring to PIDs, a review of Flickinger identifies a system which can be used in a digital television service delivery network with content such as video or multimedia stream such as MPEG signals (Abstract; page 3 [0034]). Flickinger further teaches the insertion of content directly into a portion of the screen during actual programming or replacing existing data in the data stream (page 3 [0041])

Art Unit: 2423

and further discloses substituting or splicing content into the programming being delivered or the programming being viewed (page 5 [0066]). Hence, Flickinger teaches use of MPEG signals for insertion, replacing, substituting or splicing content into programming being delivered or viewed, as such, teaches at least two pieces of content, a first content (i.e. original content), being delivered or viewed, and a second content (i.e. substitution content) for inserting, replacing, substituting, or splicing which suggests the programming being delivered or viewed is the original content. Furthermore, whereas Flickinger teaches each PID is created for each *data stream*, Flickinger does not specifically reference "packet identifiers (PIDs) associated with one or more macroblocks or original content and one or more macroblocks of substitution content." In an analogous art, Florencio teaches a method for inserting a visual element into an *encoded bit stream* (Abstract) comprising MPEG data stream comprising video access units and an access unit will be a complete encoded video frame where access units correspond to more than one macroblocks (Fig. 2 and col. 3 lines 42-55). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify a method of Flickinger for insertion of content directly into a portion of the screen during actual programming or replacing existing data in the data stream and receiving a separate PID for each data streams and further incorporating the method taught by Florencio of associating the macroblocks with each content to be presented in order to accomplish substitution of a macroblock with a corresponding macroblock when receiving multiple program streams with separate packet identifiers because the

Art Unit: 2423

aggregation of references results in a combination of prior art elements according to known methods to yield predictable results.

Regarding “where the one or more macroblocks of substitution content constitutes less than an entire video frame of macroblocks,” Flickinger teaches inserting ads or substituting only a portion of the screen (page 3 [0041]) when viewed in light Florencio as discussed above. Whereas Flickinger does not use the same terminology for “less than an entire video frame of macroblocks,” Florencio teaches substituting one or more macroblocks of original content is disclosed by Florencio (Fig. 2 discloses one or more macroblocks of content constitute less than an entire video frame of macroblocks; Abstract & Col. 3, lines 42-67 to col. 4 lines 1-10—teaching inserting visual element into an encoded bit stream by replacing macroblock content). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify a method for receiving data streams comprising PIDs by associating PIDs with corresponding macroblocks as taught by the combination of Flickinger and Florencio, as discussed above, by incorporating a method for replacing content constituting less than an entire video frame as taught by Florencio in order to accomplish substitution of a macroblock with a corresponding macroblock when receiving multiple program streams and substituting existing data into the data stream.

Regarding “a content decoder configured to play content having the first PID” Flickinger teaches (page 8 [0093] line 13-15 – playing the content is part of processing steps where the resulting program stream with substituted ad is sent

Art Unit: 2423

to television or other display device; Page 9, Col. 2 – claim 22 set-top processor configured to transmit signals to a television; page 2 [0030]—transmits signals for display; [0077] line 3-13 – a separate PID is created for each data stream, as such, the processor can play content having the received PIDs).

Regarding “a state machine controller” Flickinger teaches (page 3, [0034], line 9-16 – teaches set top box comprises finite state machine, as such, teaches a hardware state machine). Regarding “PID mapper in which the controller determines that a substitution criterion has been met to substitute one or more macroblocks of original content and the PID mapper maps content having the second PID to the first PID so that the content originally having the second PID is played” Flickinger teaches each piece of content is assigned a unique identifier (page 4 [0058]) and a PID is created for each *data stream* ([0077] line 3-13) and for each ad program stream (page 4 [0058]), as such, transmitting plurality of data streams and ads corresponds to a plurality of PIDs that the substitution content and the original content each have an associated PID. In order for determine that a “substitution criterion has been met,” Flickinger teaches ([0093], lines 11-15 – an ad insertion module inserts or splices the queued ad according to the cue tone timing and a resulting program stream with the substituted ad is decoded by decoder module and sent to a television or other display device). Since Flickinger previously assigned a unique identifier to each piece of content (i.e. original and substitution content as discussed above), Flickinger is able to substitute a second piece of content for the original. Whereas, Flickinger does not use the phrase “substitute one or more macroblocks of original content,”

Art Unit: 2423

Flickinger teaches a separate PID is created for each data stream ([0077 line 3-13) and for each ad program stream (page 4 [0058]). Flickinger further teaches the insertion of content directly into a portion of the screen during actual programming or replacing existing data in the data stream (page 3 [0041]) using MPEG signals (Abstract; page 3 [0034]) (page 5 [0066]--substituting or splicing content into the programming being delivered or the programming being viewed). Flickinger, by using MPEG signals for delivery of content, suggests replacing a portion of the screen with substitution content when viewed light the teachings of Florencio. Florencio teaches a method for inserting a visual element into an *encoded bit stream* (or data stream as taught by Flickinger above) (Florencio Abstract) comprising MPEG data stream comprising video access units and an access unit will be a complete encoded video frame where access units correspond to more than one macroblocks (Fig. 2 and col. 3 lines 42-55). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify receiving a plurality of data streams comprising PIDs to be used for replacing original content with substitution content as taught by Flickinger and by further using a macroblock of the content to be substituted as taught by Florencio in order to accomplish substitution of a macroblock with a corresponding macroblock when receiving multiple program streams with separate packet identifiers.

Regarding "wherein the state machine controller determines that the substitution criterion is met" has been discussed above. Whereas Flickinger teaches detecting a location where a substitution of content is to start and end

Art Unit: 2423

which suggests the use of a flag to identify when the substitution of content is to occur ([0041] line 17-19), Flickinger does not specifically reference "as a result of receipt of a flag forming a part of an adaptation layer of packets in the data received by the receiver, where the adaptation layer is in a packet having one of the first and second PIDs." In an analogous art, Boyce teaches an adaptation layer allows a decoder to synchronize to variable length codes within the MPEG compressed video service and also contains slice entry point information or a pointer to the start of a macroblock (Fig. 8b packet ID 151 and entry point 154; col. 1 lines 50-61). Therefore, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the teachings of Flickinger to designate a means for indicating the beginning and end of the substitution of content by using an indicator or "flag" for identifying the location of where substituted data is to be inserted/overlayed in the programming of original data stream by incorporating a method of using an adaptation layer to transmit entry point information as taught by Boyce because the aggregation of references results in a combination of prior art elements according to known methods to yield predictable results.

Regarding "wherein the substituting comprises using private signaling to select the macroblock of content with the secondary PID and discarding the macroblock of content with the primary PID" Flickinger teaches the data stream is created for each ad program stream which has an elementary stream data service but does not reference the "private signaling to select the macroblock of content with the secondary PID and discarding the macroblock of content with

Art Unit: 2423

the primary PID." In an analogous art, Bordes teaches a system for transmitting audiovisual objects separately and to substitute content in an original audiovisual content (page 1 [0019]) and further teaches receiving data stream including elementary streams and private data information (elementary streams are well known to comprise private data) (page 3 [0057]). Bordes also teaches that PIDs (as it is known in the MPEG standard) is chosen to be different for each of the channels (content) so as to make it possible to distinguish them from the same multiplex (page 3 [0062]) and further teaches the MPEG coder used to obtain the elementary streams and processing of macroblocks to accomplish processing of macroblocks (page 3 [0048-0051]. As such, Bordes invention uses elementary stream data comprising private data to select the macroblocks for substitution of content and to replace the content with the primary PID but does not reference "discarding the macroblock of content with the primary PID." Whereas Bordes teaches skipping of macroblocks to decrease the coding cost in the uniform or stationary background, Florencio also teaches reducing the computations otherwise needed for re-encoding the affected macroblocks comprising skipping macroblocks or *discarding* macroblocks (col. 7 lines 62-67 to col. 8 lines 1-9). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify receiving a plurality of data streams comprising PIDs to be used for replacing original content with substitution content as taught by Flickinger and by further utilizing an MPEG coder to obtain the elementary stream data comprising private data to select the macroblocks for substitution of content as taught by Bordes in order to accomplish substitution of

Art Unit: 2423

a macroblock with a corresponding macroblock when receiving multiple program streams with separate packet identifiers. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Flickinger and Bordes by further incorporating the system of Florencio for content substitution comprising skipping or discarding macroblocks of content in order to reduce the computations otherwise needed for re-encoding the affected macroblocks because both methods are suggested by Bordes and Florencio and because the aggregation of prior art elements results in an aggregation of prior art elements according to known methods to yield predictable results.

42. Claims 31-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flickinger et al. PG Pub 2005/0210502 (hereinafter "Flickinger"), Florencio et al., US 6,621,866 (hereafter Florencio), in further view of Linzer US 6,323,914 (hereafter Linzer).

43. Regarding claim 31, "a method of content substitution, comprising: receiving data representing video content" Flickinger teaches (page 3, [0041] line 1-22 – invention used to insert ads into television programming or replace existing data in data streams (i.e. content substitution); [0052], line 1-10; Figure 9, 901 shows MPTS transport stream received with ads and ads metadata representing content; Fig. 2 element 202 input port for receiving content and data streams,

Regarding "the data having a plurality of packet identifiers (PIDs) where each PID is associated with one or more macroblocks of original content" Flickinger teaches ([0077] line 3-13 – a separate PID is created for each data stream and for each ad program stream, as such, transmitting plurality of data streams and ads corresponds to a plurality of PIDs). Whereas Flickinger reference does not specifically reference the phrase "original content" when referring to PIDs, a review of Flickinger identifies a system which can be used in a digital television service delivery network with video or multimedia stream such as MPEG signals (Abstract; page 3 [0034]) and teaches the insertion of content directly into a portion of the screen during actual programming or replacing existing data in the data stream (page 3 [0041]) and further discloses substituting or splicing content into the programming being delivered or the programming being viewed (page 5 [0066]). Hence, Flickinger teaches use of MPEG signals for insertion, replacing, substituting or splicing content into programming being delivered or viewed, as such, teaches at least two pieces of content, a first content, being delivered or view, and a second content for inserting, replacing, substituting, or splicing which suggests the programming being delivered or viewed is the original content. Furthermore, whereas Flickinger teaches each PID is created for each data stream, Flickinger does not specifically reference "each PID is associated with one or more macroblocks or original content." In an analogous art, Florencio teaches a method for inserting a visual element into an encoded bit stream (Abstract) comprising MPEG data stream comprising video access units and an access unit will be a complete encoded video frame where

Art Unit: 2423

access units correspond to more than one macroblock (col. 3 lines 42-55). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify a method of Flickinger for insertion of content directly into a portion of the screen during actual programming or replacing existing data in the data stream and receiving a separate PID for each data streams and further incorporating the method taught by Florencio of associating the macroblocks with each content to be presented in order to accomplish substitution of a macroblock with a corresponding macroblock when receiving multiple program streams with separate packet identifiers because the aggregation of references results in a combination of prior art elements according to known methods to yield predictable results.

Regarding "receiving mode data representing a content substitution mode of operation of a decoder; where the content substitution mode represents one of a plurality of content substitution modes" Flickinger discloses modes for content substitution comprising inserting, replacing, substituting, or splicing content into the programming being delivered or the programming being viewed using MPEG signals (page 5 [0066]; page 3 [0041]) but does not specifically reference "receiving mode data." In an analogous art, Linzer teaches a special effects generator for receiving a mode signal specifying the presentation modes of the decompressed version of the video signal (col. 5 lines 29-51) in a system which accomplishes special effects comprising wipes, overlays, fades and dissolves (col. 1 lines 18-20). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify a method of

Art Unit: 2423

Flickinger for inserting, replacing, substituting, or splicing content into the programming being delivered or the programming being viewed using MPEG signals by incorporating the method of Linzer for receiving a mode signal specifying the presentation modes in order for the decoder to receive a signal indicating how to process the received content.

Regarding "initiating processing of content having the first PID" reads on Flickinger ([0048] line 3-5, ads are transmitted to the STBs for storage until they are played where each content comprises a unique identifier ([0058] corresponds to processing content the first PID);

Regarding "determining that a substitution criterion has been met to substitute one or more macroblocks of original content, where the one or more macroblocks constitute less than an entire video frame of macroblocks" Flickinger teaches ("substitution criterion" corresponds to Flickinger [0042-44] determining if content should be substituted and replacing existing data if desired into the data stream). While Flickinger does not specifically use the same terminology as "substitute one or more macroblocks of original content", Flickinger teaches inserting ads or substituting only a portion of the screen (page 3 [0041]) when viewed in light Florencio as discussed above, where Florencio teaches substituting one or more macroblocks of original content Florencio (Fig. 2 discloses one or more macroblocks of content constitute less than an entire video frame of macroblocks; Abstract & Col. 3, lines 42-67 to col. 4 lines 1-10—teaching inserting visual element into an encoded bit stream by replacing

Art Unit: 2423

macroblock content). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify a method for receiving data streams comprising PIDs by associating PIDs with corresponding macroblocks as taught by the combination of Flickinger and Florencio, as discussed above, by incorporating a method for replacing content constituting less than an entire video frame as taught by Florencio in order to accomplish substitution of a macroblock with a corresponding macroblock when receiving multiple program streams and substituting existing data into the data stream.

Flickinger and Linzer disclose "selecting a content substitution mode of the decoder based on the mode data" as discussed above. Regarding "substituting the one or more macroblocks having a second PID for the one or more macroblocks having a first PID; and processing the substituted content" Flickinger teaches the system inserts ads directly into a portion of the screen during the actual programming (see discussion above for PID associated with one or more macroblocks of original content, hence, the actual programming corresponds to applicant's macroblock having the first PID"). While Flickinger does not specifically reference the same terminology for disclosing "the one or more macroblocks having a second PID for the one or more macroblocks having a first PID ", Flickinger suggests the display area is broken up into macroblocks to accomplish insertion when viewed in light of MPEG transmission as disclosed by Florencio, where Florencio teaches (Fig. 2 disclosing one or more macroblocks of content constitute less than an entire video frame of macroblocks; Abstract & Col. 3, lines 42-67 to col. 4 lines 1-10—teaching

Art Unit: 2423

inserting visual element into an encoded bit stream by replacing macroblock content). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify a method of Flickinger for inserting, replacing, substituting, or splicing content into the programming being delivered or the programming being viewed using MPEG signals by incorporating the method of Linzer for receiving a mode signal specifying the presentation modes in order for the decoder to receive a signal indicating how to process the received content. it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Flickinger and Linzer by further substituting a content in a data stream represented by separate PIDs by associating the original, or first data stream or program stream, with a first and second macroblock of content for each data stream or program stream as taught by Florencio in order to accomplish substitution of a macroblock with a corresponding macroblock when receiving multiple program streams with separate packet identifiers.

44. Regarding claim 32, "wherein the substitution criterion is met as a result of receipt of a flag" Flickinger solves the problem of the need to use a "flag" as disclosed by applicant for automatically detecting a location where a substitution of content is to start and end (Flickinger--0041, line 17-19—teaching avails) and additionally teaches: 1) scheduler 912 that receives instructions on when ad should be played or substituted ([0094], line 1-10) and 2). "management of ads which are inserted into a portion of the screen during the actual programming" (page 2, [0041]) which therefore teaches that the actual programming

Art Unit: 2423

corresponds to applicant's "main content" and the ads inserted into the actual programming is the "substitution content data" because the ads inserted into the display replace/or substitute the actual programming.

45. Regarding claim 33, "wherein the substitution criterion is met as a result of an operator input" Flickinger teaches (0097, lines 1-9 updating or switching among multiple ads is determined by viewer selections input by user via remote control operation).

46. Regarding claim 34, "wherein substituting is initiated and terminated by private signaling forming part of an adaptation layer of packets in a data stream" ([0093] line 1-15 --data stream carries digital cue tone used for identifying where the substituted ad is to be placed in the data stream).

47. Regarding claim 35, wherein the plurality of substitution modes comprise a one to one insertion mode, a multi for one insertion or deletion mode and a one for one substitution mode" Flickinger discloses modes for content substitution comprising inserting, replacing, substituting, or splicing content into the programming being delivered or the programming being viewed using MPEG signals (page 5 [0066]; page 3 [0041]).

48. Regarding claim 36, "a computer readable medium storing instructions which, when executed on a programmed processor, carry out the content substitution method according to claim 31" Flickinger et al. teaches the content substitution encoder "implemented using a programmed computer" ([0099], Col.

Art Unit: 2423

2, line 11-16 -- encoder corresponds to software, hardware, or circuit which encompasses computers or programmed general purpose processors).

49. Claims 37-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flickinger et al. PG Pub 2005/0210502 (hereinafter "Flickinger"), Florencio et al., US 6,621,866 (hereafter Florencio), Linzer US 6,323,914 (hereafter Linzer), in further view of Bryant et al., US 5,652,615 (hereafter Bryant).

50. Regarding claim 37, "a decoder, comprising: a receiver receiving data that represents content" Flickinger teaches (Page 9, Col. 2 -- claim 22 processor configured to decode; ([0052], line 1-10; Figure 9, 901 shows MPTS transport stream received with ads and ads metadata representing content; Fig. 2 element 202 input port for receiving content and data streams), "the data having a plurality of packet identifiers (PIDs) associated with one or more macroblocks of original content and one or more macroblocks of substitution content" Flickinger teaches ([0052], line 1-10; Figure 9, 901 identifies MPTS transport stream with ads and ads metadata which allows one of ordinary skill in the art to draw an inference that MPTS transport streams transmit data comprising macroblocks; [0077] line 3-13 -- a separate PID is created for each data stream; and for each ad program stream, as such, transmitting plurality of data streams and ads corresponds to a plurality of PIDs). While Flickinger does not specifically reference the phrase "packet identifiers (PIDs) associated with one or more macroblocks of original content and one or more macroblocks of substitution

Art Unit: 2423

content," Flickinger teaches a separate PID is created for each data stream and for each ad program stream, ([0077] line 3-13) and Flickinger teaches inserting ads or substituting only a portion of the screen (page 3 [0041]), as such, Flickinger receives input data representing at least one macroblock of substitution content. In an analogous art, Florencio teaches a method for inserting a visual element into an *encoded bit stream* (or data stream as taught by Flickinger above) (Florencio Abstract) comprising MPEG data stream comprising video access units and an access unit will be a complete encoded video frame where access units correspond to more than one macroblocks (Fig. 2 and col. 3 lines 42-55). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify receiving a plurality of data streams comprising PIDs by receiving data for macroblocks associated with the PIDs as taught by Florencio disclosing receiving a macroblock of the content to be substituted in order to accomplish substitution of a macroblock with a corresponding macroblock when receiving multiple program streams with separate packet identifiers.

Regarding "the receiver further receiving mode data representing a content substitution mode of operation of a decoder, where the content substitution mode represents one of a plurality of content substitution modes" Flickinger discloses modes for content substitution comprising inserting, replacing, substituting, or splicing content into the programming being delivered or the programming being viewed using MPEG signals (page 5 [0066]; page 3 [0041]) but does not specifically reference "receiving mode data." In an

Art Unit: 2423

analogous art, Linzer teaches a special effects generator for receiving a mode signal specifying the presentation modes of the decompressed version of the video signal (col. 5 lines 29-51) in a system which accomplishes special effects comprising wipes, overlays, fades and dissolves (col. 1 lines 18-20). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify a method of Flickinger for inserting, replacing, substituting, or splicing content into the programming being delivered or the programming being viewed using MPEG signals by incorporating the method of Linzer for receiving a mode signal specifying the presentation modes in order for the decoder to receive a signal indicating how to process the received content.

Regarding "a content decoder configured to play content having the first PID" reads on Flickinger ([0048] line 3-5, ads are transmitted to the STBs for storage until they are played where each content comprises a unique identifier ([0058]) corresponds to processing content the first PID).

Regarding "a controller that determines that a substitution criterion has been met to substitute one or more macroblocks of original content, and that further selects a content substitution mode of the decoder based on the mode data" Flickinger teaches ("substitution criterion" corresponds to Flickinger [0042-44] determining if content should be substituted and replacing existing data if desired into the data stream). While Flickinger does not specifically use the same terminology as "substitute one or more macroblocks of original content", Flickinger teaches inserting ads or substituting only a portion of the screen (page

Art Unit: 2423

3 [0041]) when viewed in light Florencio as discussed above, where Florencio teaches substituting one or more macroblocks of original content Florencio (Fig. 2 discloses one or more macroblocks of content constitute less than an entire video frame of macroblocks; Abstract & Col. 3, lines 42-67 to col. 4 lines 1-10—teaching inserting visual element into an encoded bit stream by replacing macroblock content). However, the combination of Flickinger and Florencio do not teach “selects a content substitution mode of the decoder based on the mode data.” In an analogous art, Linzer teaches a special effects generator for receiving a mode signal specifying the presentation modes of the decompressed version of the video signal (col. 5 lines 29-51) in a system which accomplishes special effects comprising wipes, overlays, fades and dissolves (col. 1 lines 18-20). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify a method for receiving data streams comprising PIDs by associating PIDs with corresponding macroblocks as taught by the combination of Flickinger and Florencio, as discussed above, by incorporating a method for replacing content constituting less than an entire video frame as taught by Florencio in order to accomplish substitution of a macroblock with a corresponding macroblock when receiving multiple program streams and substituting existing data into the data stream. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify a method of Flickinger and Florencio by incorporating the method of Linzer for receiving a mode signal specifying the presentation modes in order for the decoder to receive a signal indicating how to process the received content.

Regarding "a PID mapper that maps content having the second PID to the first PID so that the content originally having the second PID is played" Flickinger teaches ([0093], lines 11-15 – an ad insertion module inserts or splices the queued ad according to the cue tone timing and a resulting program stream with the substituted ad is decoded by decoder module and sent to a television or other display device (i.e. substituting content). Whereas Flickinger, teaches that each piece of content is assigned a unique identifier (page 4 [0058]), Flickinger does not specifically reference the phrase "PID mapper." In an analogous art, Bryant teaches that each program is assigned a packet identifier of the elementary streams (col. 5 lines 65-67 to col. 6 lines 1-27) and further teaches that several methods can be used to mix, e.g. insert and select, program segments and to compose a program as it progresses downstream over the broadcast network which may require MPEG splicing (as taught by Flickinger) (Bryant col. 7 lines 28-54) and also recognizes that when substituting content, a modified program map table (comprising PID information) is inserted in the program stream to indicate that a particular program is to include a different set of elementary stream packets (col. 6 lines 55-67 to col. 8 lines 1-59). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify receiver comprising a module for replacing an original program comprising a first PID to a second program comprising a second PID as taught by Bryant because the combination of references results in a product that is more desirable and more efficient.

51. Regarding claim 38, "wherein the plurality of substitution modes comprise a one to one insertion mode, a multi for one insertion or deletion mode and a one for one substitution mode" Flickinger discloses modes for content substitution comprising inserting, replacing, substituting, or splicing content into the programming being delivered or the programming being viewed using MPEG signals (page 5 [0066]; page 3 [0041]).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will

Art Unit: 2423

the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALFONSO CASTRO whose telephone number is (571)270-3950. The examiner can normally be reached on Monday thru Friday (8am to 5pm EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Koenig can be reached on 571-272-7296. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. C./

Examiner, Art Unit 2423

Art Unit: 2423

/Andrew Y Koenig/

Supervisory Patent Examiner, Art Unit 2423